### Spinal Cord Stimulation in Pregnancy with Failed Back Surgery Syndrome

**Abstract:**

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**Abstract**

Women of child-bearing age who are candidates for trial and possible implantation of a spinal cord stimulator (SCS) may express concerns regarding its effect on their ability to become pregnant, to maintain a pregnancy and to breastfeed. Despite the large number of SCS implanted worldwide there is a paucity of data regarding its effect on fertility and the course of the pregnancy. We describe a case of 32 year old lady in our centre who became pregnant after SCS implantation and had an uneventful pregnancy with delivery of a healthy baby which was breastfed.

**Introduction**

The last three decades have witnessed a rapid increase in the technologic development and wider use of spinal cord stimulation (SCS) for refractory chronic pain conditions. The likelihood of a woman with a SCS in situ becoming pregnant is increasing. There is an earnest need to investigate the effects of SCS on fertility, fetal well-being, pregnancy and lactation.

**Case Report**

A 32 year old lady presented in the Pain Clinic with failed back surgery syndrome (FBSS) after lumbar discectomy. Maximal medical therapy including oxycotin, pregabalin and amitriptyline had provided minor analgesic benefit only. The patient had significant disability as judged by Oswestry disability index score. The main complaint was left L5 radicular symptoms and MRI scan had revealed a good clearance of the disc with no indication for re-operation. Two L5 dorsal root ganglion treatments provided short-term relief only. After psychometric analysis and education, a Medtronic Restore Advanced system was implanted successfully. The electrodes were advanced through the L3-L4 interspace, with the tips at T9-10 epidural space. The implantable pulse generator (IPG) was placed in the right gluteal region. Significant improvement in pain was reported at one month post implantation follow-up. Her quality of life improved dramatically and she was well able to perform and participate in her day to day activities.

Analgesic medication consumption had reduced to solpadeine only. The SCS worked extremely well and one year after implantation the patient became pregnant. The effects of SCS on the developing fetus are unknown and there are no guidelines regarding the management of pregnancy with a SCS in situ. Based on the recommendations by all manufacturers, the device was switched off for the entire duration of pregnancy. Unfortunately, the radicular pain recurred and oxycotin was restarted. The obstetrician was advised of the presence of the SCS and it was suggested to avoid epidural labour analgesia or spinal anaesthesia. The patient developed pregnancy induced hypertension and underwent elective cesarean section under general anaesthesia. A healthy baby was born with Apgar score of 8. SCS was turned four days post surgery and patient was discharged home after one week with a reducing dose of oxycotin which ceased at one month. At three months follow-up post delivery, the SCS was working well and solpadeine again was the only oral analgesic taken when required.

**Discussion**

Women of child bearing age who suffer with a chronic pain condition amenable to SCS therapy are concerned about the possible effects of SCS on their ability to reproduce. Implantation of spinal cord stimulators in such group of patients requires special consideration of future obstetric and anesthetic needs. Abdominal placement of the implantable pulse generator may result in technical complications. The IPG may easily be damaged during an urgent/emergent cesarean delivery by either direct surgical trauma or from the electrocautery. Gluteal placement prevents repositioning during pregnancy and progressive pain associated increased abdominal girth. Generally neuromodulatory device is deactivated once the diagnosis of pregnancy is made. There remains uncertainty about the impact of SCS on fertility, pregnancy, labour and lactation. There are no human studies on fetal development and spinal cord stimulation.

However, animal studies do not report any adverse effects from conventional stimulation low-frequency electromagnetic fields (EMF). In fact, Bernardini et al in a case series and review of literature suggest neuromodulation may indirectly cause a relative increase in fertility by reducing pain, enhancing activity and sense of well-being thereby promoting normal sexual activity. This case illustrates successful implantation of SCS with return of normal activity, achieving conception and uneventful pregnancy and labour. Avoidance of the abdominal site for implantation of the IPG in women of childbearing age would be a reasonable consideration. Temporary deactivation of the stimulator may be a more prudent option once pregnancy is established. Early activation of SCS following pregnancy should be encouraged as this will avoid the potentially harmful effects of pain medications during lactation.

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**References**


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